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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,331	11/18/2003	Takashi Kato	NGW-012	8280
959	7590	03/08/2006	EXAMINER	
LAHIVE & COCKFIELD 28 STATE STREET BOSTON, MA 02109			RHEE, JANE J	
			ART UNIT	PAPER NUMBER
			1745	
DATE MAILED: 03/08/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/717,331

Applicant(s)

KATO ET AL.

Examiner

Jane Rhee

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/16/2004, 8/2/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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**DETAILED ACTION*****Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6874588 in view of O'Connell et al. (6223843).

Patent '588 discloses a fuel cell, a temperature regulating unit, a fuel supply, regulating unit, a humidification unit, a fuel cell output setting unit, the temperature regulating unit and the fuel cell output setting unit are arranged to align in a transverse direction of the vehicle so as to constitute a first group and wherein the fuel supply regulating unit and the humidification are arranged to align in the transverse direction of the vehicle so as to constitute a second group, whereby the first group, the fuel cell and the second group are arranged to align in that order from the front to a rear of the

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vehicle (claim 1,3 and 5). Patent'588 discloses a fuel storage unit (claim 1). Patent'588 discloses a radiator disposed ahead of the first group in a longitudinal direction of the vehicle (claim 6). Patent'588 discloses that the fuel cell is disposed substantially at a central position in the longitudinal direction of the vehicle (claim 2). Patent'588 discloses that the first group, the fuel cell, and the second group are accommodated in a fuel cell system box disposed under a floor of a vehicle (claim 3). Patent'588 discloses cooling fluid pipe through which a cooling fluid flows which has implemented a heat exchange function by passing through the temperature regulating unit, wherein the fuel cell inlet of the cooling fluid pipe through which the cooling fluid is introduced to the fuel cell and a fuel cell outlet of the cooling fluid pipe through which the cooling fluid is discharged from the fuel cell are disposed at one or more longitudinally rear positions of the vehicle (claims 9 and 11). Patent'588 discloses that the humidification unit being provided in the fuel cell system box, wherein the fuel supply regulating unit and the humidification unit are arranged to align in the transverse direction of the vehicle (claims 1-3). Patent'588 fails to disclose an exhaust unit.

O'Connell et al. teaches an exhaust unit for the purpose of generating power for the air compressor (col. 2 lines 63-64). Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Patent'588 with an exhaust in order to generate power for the air compressor as taught by O'Connell et al.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riemer et al. in view of Skala (6394207) and in further view of Greenhill (6223844).

As to claim 1, Riemer et al. discloses an on board fuel cell powered electric vehicle (col. 2 line 7-8) comprising a fuel cell (figure 1b number 15), a humidification unit (figure 1b number 35), a fuel cell output setting unit (figure 1b number 14) wherein the fuel cell output setting unit is arranged to align in a transverse direction of the vehicle so as to constitute a first group (figure 1b number 14) and wherein the humidification unit (figure 1b number 35) is arranged to align in the transverse direction of the vehicle so as to constitute a second group, whereby the first group, the fuel cell and the second group are arranged to align in that order from a front to a rear of the vehicle (figure 1b).

As to claim 2, Riemer et al. discloses a radiator disposed ahead of the first group in a longitudinal direction of the vehicle (figure 1 b number 33), and a fuel storage unit (figure 1b number 17) disposed rearward of the second group in the longitudinal direction of the vehicle (figure 1b number 17). As to claim 3, Riemer et al. discloses that the fuel cell is disposed substantially at a central position in the longitudinal direction of the vehicle (figure 1b number 15). As to claim 4, Riemer et al. discloses that the first group, the fuel cell and the second group are accommodated in a fuel cell system box disposed under a floor of the vehicle (figure 1a).

Riemer et al. fail to disclose a temperature-regulating unit. Skala teaches a temperature-regulating unit (figure 1 number 42) for the purpose of controlling the

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coolant pumped through the fuel cell in order to maintain a desired temperature (col. 4 lines 65-col. 5 lines 1-9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Riemer et al. with a temperature regulating unit in order to control the coolant pumped through the fuel cell in order to maintain a desired temperature as taught by Skala (col. 4 lines 65-col. 5 lines 1-9).

Riemer et al. fail to disclose a fuel supply regulating unit. Greenhill teaches a fuel supply regulating unit for the purpose of diverting the oxidant stream away from the fuel cell stack if desired for example in a terrestrial vehicle moving downhill (col. 6 lines 12-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide a fuel supply regulating unit in order to divert the oxidant stream away from the fuel cell stack if desired for example in a terrestrial vehicle moving downhill as taught by Greenhill.

Riemer et al. fail to disclose an exhaust unit. Greenhill teaches an exhaust unit (figure 3 number 215) for the purpose of directing various fluids including reactant and coolant streams to and from the fuel cell stacks (col. 6 lines 56-59). Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Riemer with an exhaust in order to direct various fluids including reactant and coolant streams to and from the fuel cell stacks as taught by Greenhill.

As to the limitations "for generating electricity by being supplied with a fuel and an oxidant", "for regulating the temperature for the fuel cell by discharging a cooling fluid through a pipe unit", "for regulating a supply condition in which the fuel is supplied to the fuel cell", "for supplying water to the fuel cell by humidifying at least one of the fuel and

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an oxidant”, “for setting whether or not electric power can be extracted from the fuel cell”, and “for exhausting a gas discharged from the fuel cell from a rear of the vehicle” are intended uses. It has been held that a recitation with respect to the manner in which the claimed particle is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987)

3. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riemer et al. (5641031) in view of Skala (6394207) and in further view of Greenhill (6223844).

Riemer et al. discloses the on board fuel cell powered vehicle as described above. As to claim 5, Riemer et al. discloses an on-board fuel cell powered electric vehicle (col. 1 lines 7-8) comprising a fuel cell (figure 1b number 15), a radiator (figure 1b number 33), and a fuel storage unit (figure 1b number 17), wherein the radiator (figure 1b number 33), and the fuel supply regulating unit (figure 1b number 18) are arranged to align in that order from the front to a rear of the vehicle, with the fuel storage unit (figure 1b number 17) being disposed rearward of the fuel supply regulating unit in a longitudinal direction (figure 1b number 18) of the vehicle and wherein, the fuel cell (figure 1b number 15) and the fuel supply regulating unit (figure 1b number 18) are accommodated in a fuel cell system box disposed on an underside of a floor of the vehicle (figure 1a).

Riemer et al. fail to disclose a temperature-regulating unit. Skala teaches a temperature-regulating unit (figure 1 number 42) for the purpose of controlling the

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coolant pumped through the fuel cell in order to maintain a desired temperature (col. 4 lines 65-col. 5 lines 1-9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Riemer et al. with a temperature regulating unit in order to control the coolant pumped through the fuel cell in order to maintain a desired temperature as taught by Skala (col. 4 lines 65-col. 5 lines 1-9).

Riemer et al. fail to disclose a fuel supply regulating unit. Greenhill teaches a fuel supply regulating unit for the purpose of diverting the oxidant stream away from the fuel cell stack if desired for example in a terrestrial vehicle moving downhill (col. 6 lines 12-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide a fuel supply regulating unit in order to divert the oxidant stream away from the fuel cell stack if desired for example in a terrestrial vehicle moving downhill as taught by Greenhill.

As to claim 6, Riemer et al. fail to disclose a cooling pipe. Greenhill teaches a cooling pipe through which a cooling fluid flows which has implemented a heat exchange function (col. 6 lines 17-24), wherein a fuel cell inlet of cooling fluid pipe through which the cooling fluid is introduced (col. 6 lines 17-24) to the fuel cell (col. 6 lines 17-24) and a fuel cell outlet of the cooling fluid pipe through which the cooling fluid is discharged (col. 6 lines 17-24) from the fuel cell for the purpose of providing a fuel stack that generates more heat as it produces more power (col. 2 lines 20-24).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Riemer et al. with a cooling pipe through which a cooling fluid flows which has implemented a heat exchange function,



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wherein a fuel cell inlet of cooling fluid pipe through which the cooling fluid is introduced to the fuel cell and a fuel cell outlet of the cooling fluid pipe through which the cooling fluid is discharged from the fuel cell in order to provide a fuel stack that generates more heat as it produces more power as taught by Greenhill.

As to claim 8, Riemer et al. discloses a humidification unit being provided in the fuel cell system box (figure 1 b number 35), wherein the fuel supply regulating unit (figure 1b number 18) and the humidification unit (figure 1b number 35) are arranged to align in the transverse direction of the vehicle (figure 1b).

As to the cooling fluid piping that is disposed relative to the humidification unit in such a manner as to enable a heat exchange therein, and as to claim 7 wherein the cooling fluid pipe is disposed relative to the fuel supply regulating unit, Greenhill teaches that the cooling fluid piping is disposed relative to the humidification unit (col. 6 line 10 and figure 2) and cooling fluid pipe is disposed relative to the fuel supply regulating unit (figure 2 number 36 and 44) such as a manner as to enable a heat exchange therein, therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide the cooling fluid piping as described above in order to provide a fuel stack that generates more heat as it produces more power as taught by Greenhill.

As to claim 9, Riemer et al. fail to disclose a fuel pipe through which a fuel flows which has passed through the fuel supply regulating unit, wherein the fuel cell inlet of the fuel pipe through which the fuel is introduced into the fuel cell and a fuel cell outlet of the fuel pipe through which the fuel is discharged from the fuel cell. Greenhill teaches that the fuel flows which has passed through the fuel supply regulating unit, wherein the

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fuel cell inlet of the fuel pipe through which the fuel is introduced into the fuel cell and a fuel cell outlet of the fuel pipe through which the fuel is discharged from the fuel cell (figure 2 number 136) for the purpose of supplying oxidant to the fuel cell (col. 6 lines10-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide the fuel cell that is disposed in the rear position of the vehicle of Riemer et al.'s fuel cell electric powered vehicle with that the fuel flows which has passed through the fuel supply regulating unit, wherein the fuel cell inlet of the fuel pipe through which the fuel is introduced into the fuel cell and a fuel cell outlet of the fuel pipe through which the fuel is discharged from the fuel cell in order to supply oxidant to the fuel cell (col. 6 lines10-11) as taught by Greenhill.

As to the limitations "for generating electricity by being supplied with a fuel and an oxidant", "for regulating the temperature for the fuel cell by discharging a cooling fluid through a pipe unit", "for regulating a supply condition in which the fuel is supplied to the fuel cell", "for supplying water to the fuel cell by humidifying at least one of the fuel and an oxidant", "for cooling the cooling fluid", and "for storing the fuel" are intended uses. It has been held that a recitation with respect to the manner in which the claimed particle is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987)

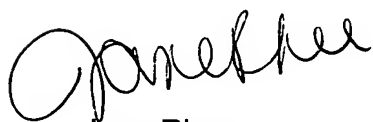
### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jane Rhee  
March 3, 2006



TRACY DOVE  
PRIMARY EXAMINER  
3/04